a coupling connection disposed within said support body;

a pinhole array comprising one pinhole disposed within said support body;

a fiber optic waveguide disposed within said support body for coupling in a simulated light; and

C) Cont

a beam splitter for confocal division of an incoming beam path and an outgoing beam path, whereby incoming light is focused between said fiber optic array and said beam splitter. --

REMARKS

The Examiner has objected to the Abstract. The Abstract has been amended to overcome this objection wherein a new abstract is enclosed.

The specification has been objected to for failing to provide a proper antecedent basis for the claimed subject matter. Claim 22 and claim 39 have been amended to overcome this objection. In particular, "natural aperture" was changed back to "numerical

aperture" while "fiber optic array" was changed back to "fiber optic waveguide".

The Examiner has objected to claims 27 and 30 because dichronic should be dichroic. Claims 27 and 30 have been amended to overcome this objection. The Examiner has objected to claims 27, 28, 32, 33, 35, 36, and 38-40 under 35 U.S.C. 112, second paragraph. Claims 27, 32, 35, 36 and 38-40 have been amended to overcome these rejections.

The Examiner has rejected claims 22-24, 27-34, and 41 under 35 U.S.C. 103(a) as being unpatentable over *Jörgens* in view of *Engelhardt*. Claim 22 has been amended to overcome this objection. While *Jörgens* and *Engelhardt* deal with fluorescence measurements, there is a complete different technical field in the fluorescence correlation measurement of the invention at issue as claimed in amended claim 22. Claim 22 deals with the measurement of correlated fluxations in fluorescence whereas standard fluorescence measurements such as those in *Jörgens* and *Engelhardt* just measure receipt of certain fluorescence light. Therefore, any fluctuations with standard fluorescence measurements whereas fluctuations other

than fluctuations of fluorescence light admitted by sample are highly critical to fluorescence correlation measurements. This is because they may completely destroy the value of these measurements. Therefore, the applicant believes that a person skilled in the art would not take into account solutions that come from standard fluorescence measurements. Moreover, the new claims such as claims 22-43 are clearly different. *Jörgens* is contrary to claim 22 because a light in *Jörgens* is not focused on the detectors 47, 48 and 49 as stated by the Examiner, instead it has to be focused on the point of the pinholes 46, 44 and 45. It is therefore defocused after having passed these pinholes again.

In addition, the Examiner has rejected claims 25, 26, 39 and 40 under 35 U.S.C. 103(a) as being unpatentable over *Jörgens* in view of *Engelhardt* and in further view of *Schanda*. Claims 25, 26, 39 and 40 depend from amended claim 22. The applicant believes that amended claim 22, as written, is sufficient to overcome this rejection. As stated above, in *Jörgens* the light is not focused on a detector since it has to be focused on the point of the pinholes and therefore defocusing occurs after having passed these pinholes again. In addition, as stated above, *Jörgens* measures the receipt

of certain fluorescence light and doesn't calculate any fluctuations in fluorescence.

New claim 42 and 43 have also been added. Technically new claims 42 and 43 are written to overcome the above rejections and any of the above prior art to *Jörgens*, *Engelhardt* or *Schanda*. For example, the light in *Jörgens* passes the beam splitter between incoming and outcoming light in parallel. This follows from the fact that the pinholes in *Jörgens* 46, 44 and 45 as well as the scanning mirrors 13 and 14 are the pupil of the objective 5 as stated in column 4, lines 29-31 and column 5, lines 53-55. This occurrence is only possible if the light passes beam splitter 36 and mirrors 13 and 14 in parallel. Otherwise there has to be an optical system between beam splitter 36 and mirrors 14 and 15 which is not shown in *Jörgens*. In addition, *Jörgens* does not show any focal point of the incoming light before it enters the beam splitter. In contrast, the module according to claim 22 needs less optical systems like pinholes and lenses especially when separating incoming and outgoing beams. This type of system is critical for correlation measurements.

In addition, the design disclosed on page 588 in chapter 1 appendix 2 of the *Handbook of Biological Confocal Microscopy* differs from the present invention because this standard fluorescence measurement module is similar to that of *Jörgens*.

In conclusion, claims 22, 27, 28, 32, 33, 35, 36, and 38-40 have been amended. New claims 42 and 43 have been added. The applicant respectfully requests early allowance of the remaining claims.

Respectfully submitted,

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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10, on the date indicated above, and is addressed to the Ass't. Commissioner for Patents, Washington, D.C. 20231.

William Collard

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22. (Amended) A flouresence correlation spectroscopy module arrayed in an optical connection of a microscope comprising:

a support body;

a coupling connection disposed within said support body;

a pinhole array comprising one pinhole disposed within said support body; [and]

a detector;

a lens array positioned between said pinhole and said detector, for focusing an emission light passing through said pinhole on said detector; and

a fiber optic [array] waveguide disposed within said support body for coupling in a stimulating light.

27. (Amended) The module as in claim 22, further comprising

a filter array and a [dichronic] dichroic beam splitter both disposed within [said] a beam path before a beam within said beam path is coupled into the microscope.

28. The module as in claim 27, further comprising a common receptacle holder removably inserted within said support body, wherein said filter array and said beam splitter are set on said common receptacle holder.

29. The module according to claim 22, further comprising at least one optical unit disposed within an emission beam path behind said pinhole.

30. (Amended) The module as in claim 29, wherein said at least one optical unit comprises a [dichronic] dichroic beam splitter.

31. The module as in claim 29, wherein said at least one optical unit comprises at least one mirror.

32. (Amended) The module as in claim 29, further comprising at least one receptacle holder, wherein said at least one optical unit is removably insertable within [said] a receptacle holder.

33. The module as in claim 32, further comprising a filter for selecting a detection wavelength, wherein said filter is disposed within said optical unit.

34. The module as in claim 22, further comprising a detector, and a lens array for focusing an emission light on said detector in the emission beam path before said detector.

35. (Amended) The module as in claim 22, further comprising a receptacle holder disposed within said support body and wherein said receptacle holder comprises shaped surfaces, and complementary shaped surfaces arrayed and fixed in [the] a beam path in said support body.

36. (Amended) The module as in claim 22, wherein said support body is made in one piece from a metallic material and

has a connection flange for attaching [to] said support body to the connection of the microscope.

37. The module as in claim 22, further comprising a receptacle holder and wherein said support body has a series of cavities for receiving said receptacle holder, wherein said cavities have lateral surfaces to accommodate the reception of said receptacle holder.

38. (Amended) The module as in claim 37, further comprising at least two frequency selective filter devices disposed within said [filter devices] receptacle holders.

39. (Amended) The module as in claim 22, further comprising a collimator disposed within said [housing] support body and which is tuned to [said] a [natural] numerical aperture of said fiber optic waveguide.

40. (Amended) The module as in claim 39, further comprising frequency selective devices which choose different spectrum

ranges of [said] a set of emission wavelengths.